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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,322	08/24/2005	Manfred Brandl	14603-010US1/P2002,0604 U	2164
26161 7590 06/21/2007 FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER GEYER, SCOTT B	
			ART UNIT 2812	PAPER NUMBER
			MAIL DATE 06/21/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,322	<b>Applicant(s)</b> BRANDL ET AL.	
	<b>Examiner</b> Scott Geyer	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20 is/are allowed.
- 6) ☒ Claim(s) 1,4,6,8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,7,9 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>011405, 061705</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The references cited within the IDS document submitted on June 17, 2005 (paper no. 061705) and January 14, 2005 (paper no. 011405) have been considered.

### ***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6, 8 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Hartwell et al. (6,955,976 B2).

As to **claim 1**, Hartwell et al. teach a method of producing a component comprised of first and second substrates, wherein the first substrate (504, labeled in the reference as the 'second wafer') has terminal pads 526 and 528 that are electrically conductive. The terminal pads 526 and 528 (526 is mislabeled as 536 in figure 5) can be electrically connected to their respective dies (see column 3, line 67 through column 4, lines 1 and 2). The lower surface of the second substrate (502, labeled in the reference as the 'first wafer') faces the upper surface of the first substrate (504), as shown in figure 6. Grooves (540) are formed in the lower surface of the second substrate (502) and have a predefined depth, as shown in figures 5 and 6. Incisions are formed on the upper surface of the second substrate (502) as shown in figures 7 and 8. The incisions reach the grooves (540) and form a cut-out portion in the second substrate (502) as shown in figure 8. The cutout portion, when totally removed, as depicted in figure 8, exposes the terminal pads (526 and 528) as shown in figure 8.

As to **claims 4 and 6**, Hartwell et al. teach formation of the grooves by etching and/or by laser (see column 4, lines 3-21).

As to **claim 8**, Hartwell et al. teach joining the two substrates as shown in figure 6, wherein there exists a clearance (space) between the terminal pads and the second substrate.

As to **claim 10**, Hartwell et al. teach bonding the two substrates by their respective bumps.

As to **claims 11 and 12**, Hartwell et al. teach further dicing through the first substrate as shown in figure 9 to make individual wafer stack components and the terminal pads being located on the edges of the individual components.

#### ***Allowable Subject Matter***

Claims 2, 5, 9 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 3 and 7 depend from claim 2.

Claims 14-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter. The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding the method of producing a component as recited in independent claim 14, particularly characterized

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by the formation of a pair of grooves on a second substrate that defines a strip-shaped cut-out portion, and further forming incisions on an opposite surface from the grooves such that the incisions reach the grooves to separate the cut-out portion from the substrate. Claims 15-20 are dependent upon claim 14.

### ***Conclusion***

The following references are cited as being particularly relevant to the applicant's invention: Kobori et al. (4,802,952) and Lei (US 2004/016662 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 9:00am - 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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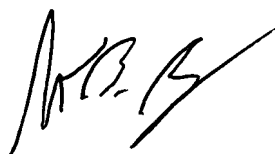
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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SBG

June 12, 2007

SCOTT B. GEYER  
PRIMARY EXAMINER

 6/12/07